

What is claimed is:

1. An apparatus for testing fluid flow and flushing a transmission cooler comprising:
  - a user interface panel;
  - a fluid supply line and a fluid return line;
  - a pressure switch, a manual shut off valve, a filtering system, and a flow switch coupled to the return line;
  - a reservoir tank for containing automatic transmission fluid and a heating element located within the reservoir tank;
  - a fluid fill port connected to the reservoir tank;
  - an air operated fluid pump coupled to the reservoir tank; and
  - an air injection system coupled to the air pump and the supply line.
2. The apparatus of claim 1, further comprising:
  - a flow meter coupled with the air pump.
3. The apparatus of claim 1, wherein the filtering system comprises:
  - a primary filter; and
  - a secondary filter.
4. The apparatus of claim 3, wherein the primary filter comprises:
  - a strainer basket with a mesh insert.
5. The apparatus of claim 4, wherein the strainer basket is clear.

6. The apparatus of claim 3 wherein the secondary filter filters smaller particles than the primary filter.

7. The apparatus of claim 6, wherein the secondary filter comprises:  
an automotive oil filter type.

8. The apparatus of claim 1, wherein the air injection system comprises:

an air regulator for receiving air from an air supply unit;  
a solenoid valve coupled to the air regulator and the air operated fluid pump; and  
an air inject valve coupled to the air regulator, the flow meter, and the supply line.

9. The apparatus of claim 1, further comprising:  
a reservoir lid connected to the reservoir tank.

10. The apparatus of claim 9, further comprising:  
a float type liquid level for detecting the amount of automatic transmission fluid in the reservoir tank.

11. The apparatus of claim 9 further comprising:  
a temperature sensor for detecting the temperature of the automatic transmission fluid.

12. The apparatus of claim 1, wherein the user interface panel further

comprises:

- a keypad;
- an emergency stop button;
- a fluid fill port; and
- an on/off switch.

13. The apparatus of claim 9, wherein the fluid fill port is connected to the reservoir tank.

14. The apparatus of claim 12, wherein the keypad further comprises:  
a plurality of keypad buttons having respective functions to program the apparatus; and  
a user display screen.

15. The apparatus of claim 14, wherein the functions of the keypad buttons comprise:

- a heat feature to heat automatic transmission fluid within the fluid reservoir;

- a flow feature to test the flow rate of the automatic transmission fluid through a transmission cooler, the supply line and the return line;

- a flush feature to activate pressurized pulse of air within a flow stream of automatic transmission fluid and flush contaminated oil and debris from a transmission cooler;

- a purge feature to uses air to purge automatic transmission fluid from a transmission cooler, the supply line and the return line;

- a stop feature; and

an empty feature to empty the reservoir tank through the supply line.

16. The apparatus of claim 15, wherein the functions of the keypad further comprises:

an UP arrow to make incremental adjustments; and  
a DOWN arrow to make incremental adjustments

17. The apparatus of claim 15, wherein the stop feature comprises:  
stopping the apparatus in any one of the heat, flow, flush, purge or empty modes.

18. The apparatus of claim 1, wherein the flow switch automatically shuts down the apparatus if a minimum fluid flow rate is not detected through the fluid return line.

19. The apparatus of claim 1, wherein the pressure switch automatically shuts down the apparatus if it detects a pressure above a prescribed setting.

20. The apparatus of claim 1, wherein the apparatus automatically shuts down when the manual shut off valve is in a closed position.

21. A method of testing fluid flow and/or flushing a transmission cooler comprising:

providing a supply of automatic transmission fluid to cycle

through a transmission cooler;

heating the supply of automatic transmission fluid;

supplying the automatic transmission fluid through a fluid supply line connected to an OUT line of a transmission cooler;

re-circulating the automatic transmission fluid from an IN line of the transmission cooler into a connected fluid return line;

filtering the re-circulated automatic transmission fluid; and

returning the filtered automatic transmission fluid back into the supply of automatic transmission fluid.

22. The method of claim 21, further comprising:

injecting pulses of air into the automatic transmission fluid as it circulates through the transmission cooler.

23. The method of claim 21, further comprising:

monitoring a fluid flow rate of the automatic transmission fluid.

24. The method of claim 22, wherein the automatic transmission fluid is continuously cycled through the transmission cooler for a prescribed time period.

25. The method of claim 24, wherein the cycling process is automated.

26. The method of claim 24, wherein the prescribed time period is adjustable.

27. A system for testing fluid flow and/or flushing a transmission cooler comprising:

means for supplying automatic transmission fluid to cycle through a transmission cooler;

means for heating the supply means of automatic transmission fluid;

means for progressing the automatic transmission fluid through a fluid supply line connected to an OUT line of a transmission cooler;

means for re-circulating the automatic transmission fluid from an IN line of the transmission cooler into a connected fluid return line;

means for filtering the re-circulated automatic transmission fluid;  
and

means for returning the filtered automatic transmission fluid back into the supply of automatic transmission fluid.

28. The system of claim 27, further comprising:

means for injecting pulses of air into the automatic transmission fluid as it circulates through the transmission cooler.

29. The system of claim 27, wherein the means for progressing comprises:

an air pump.

30. The system of claim 28 wherein the injecting means comprises:

an air inject valve.

31. The system of claim 27, wherein the filtering means comprises:  
a primary filter; and  
a secondary filter.
32. The system of claim 31, wherein the primary filter comprises:  
a strainer basket and mesh insert.
33. The system of claim 32, wherein the strainer basket is clear.
34. The system of claim 31, wherein the secondary filter filters smaller particles than the primary filter.
35. The system of claim 34, wherein the secondary filter comprises:  
an automotive oil filter type.